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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:  
SANDRA THOMPSON  
BINGHAM MCCUTCHEN, LLP  
THREE EMBARCADERO CENTER  
SAN FRANCISCO, CA 94111

PCT

NOTIFICATION OF TRANSMITTAL OF  
INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Bingham McCutchen  
IP Docket Dept.

Date of Mailing  
(day/month/year)

07 SEP 2004

Applicant's or agent's file reference

7240156001-3224000

IMPORTANT NOTIFICATION

International application No.

International filing date (day/month/year)

Priority date (day/month/year)

PCT/US03/22710

15 July 2003 (15.07.2003)

15 July 2002 (15.07.2002)

Applicant

HONEYWELL INTERNATIONAL INC.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/US

Mail Stop PCT, Attn: IPEA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Form PCT/IPEA/416 (July 1992)

Authorized officer

Ramsey Zacharia

Telephone No. (703) 308-0661

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SEP 13 2004

BINGHAM MCCUTCHEN

By: *in to ES/SPT*

724015-600

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## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

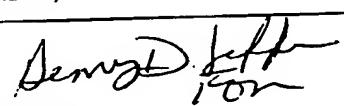
Applicant's or agent's file reference 7240156001-3224000	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US03/22710	International filing date (day/month/year) 15 July 2003 (15.07.2003)	Priority date (day/month/year) 15 July 2002 (15.07.2002)
International Patent Classification (IPC) or national classification and IPC IPC(7): B32B 15/06, 15/16, 15/20, 25/02, 25/04, 25/20, 31/00; H05K 7/20 and US Cl.: 361/704, 717, 719; 428/332, 411.1, 447, 457, 500		
Applicant HONEYWELL INTERNATIONAL INC.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.  
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 20 January 2004 (20.01.2004)	Date of completion of this report 18 August 2004 (18.08.2004)
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Ramsey Zacharia  Telephone No. (703) 308-0661

Form PCT/IPEA/409 (cover sheet)(July 1998)

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Application No.  
PCT/US03/22710

## I. Basis of the report

1. With regard to the elements of the international application:\*

☐ the international application as originally filed.

☒ the description:

pages 1-31 as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

☒ the claims:

pages NONE, as originally filed

pages NONE, as amended (together with any statement) under Article 19

pages NONE, filed with the demand

pages 32-36, filed with the letter of 20 July 2004 (20.07.2004)

☐ the drawings:

pages NONE, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

☐ the sequence listing part of the description:

pages NONE, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

☐ the description, pages NONE

☒ the claims, Nos. 3 and 25

☐ the drawings, sheets/fig NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Application No.  
PCT/US00/000000

## V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. STATEMENT

Novelty (N)

Claims 1, 2, 4, 5, 7-24, 26, 27, 29-50 YES  
Claims NONE NO

Inventive Step (IS)

Claims 1, 2, 4, 5, 7-24, 26, 27, 29-50 YES  
Claims NONE NO

Industrial Applicability (IA)

Claims 1, 2, 4, 5, 7-24, 26, 27, 29-50 YES  
Claims NONE NO

### 2. CITATIONS AND EXPLANATIONS

Claims 1, 2, 4, 5, 7-24, 26, 27, and 29-50 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest using a hydroxy functional rubber compound as the interface material.

U.S. Patent 4,450,471 teaches a semi-conductor power device secured to a heat spreader. A bonding layer is present at the interface of the heat spreader and a base material. The bonding layer comprises an epoxy, a crosslinkable resin, loaded with conductive silver particles. The heat spreader is formed of copper. However, U.S. Patent 4,450,471 does not teach or fairly suggest using a hydroxy functional rubber compound in the bonding layer.

U.S. Patent 5,440,230 teaches a silicone rubber layer between and in thermal contact with an integrated circuit with a heat spreader but does not teach that the silicone rubber is a hydroxy functional rubber.

U.S. Patent 5,847,929 teaches a circuit board that is bonded to a heat spreader by means of an epoxy or silicone adhesive. The heat spreader may be made of copper or aluminum. The adhesive is filled with silver or copper particles. However, U.S. Patent 5,847,929 does not teach or fairly suggest using a hydroxy functional rubber compound in the adhesive layer.

Claims 1, 2, 4, 5, 7-24, 26, 27, and 29-50 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

----- NEW CITATIONS -----